CONTENT ADDRESSABLE MEMORY DEVICE

CROSS-REFERENCE TO RELATED APPLICATIONS

[0001] This application is a continuation of U.S. patent application no. 10/062,307 filed February 1, 2001 and entitled "Content Addressable Memory Device." U.S. patent application no. 10/062,307 is hereby incorporated by reference in its entirety.

FIELD OF THE INVENTION

[0002] The present invention relates generally to information retrieval systems and more particularly to content addressable memory devices.

BACKGROUND

[0003] Content addressable memory (CAM) devices are often used to support packet forwarding and classification operations in network switches and routers. A CAM device can be instructed to compare a search value, typically formed from one or more fields within the header of an incoming packet, with entries within an associative storage array of the CAM device. If the search value matches an entry, the CAM device generates an index that corresponds to the location of the matching entry within the storage array, and asserts a match flag to signal the match. The index may then be used to address another storage array, either within or separate from the CAM device, to retrieve routing or classification information for the packet.

[0004] Figure 1 illustrates a prior art CAM device 100 that includes a CAM array 101 coupled to match logic 103 via a plurality of match lines 105 (ML). During a search operation, a search key is compared with the contents of each row of CAM cells 107 within the CAM array 101 to generate a corresponding row match signal. Each row match signal is either asserted or deasserted to indicate a match or mismatch condition, and is output to the match logic 103 via a respective one of the match lines 105. The match logic 103 responds to an asserted match signal